iJRASET
International Journal For Research in Applied Science and Engineering Technology



INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 12 **Issue:** IV **Month of publication:** April 2024

DOI: https://doi.org/10.22214/ijraset.2024.60057

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International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 12 Issue IV Apr 2024- Available at www.ijraset.com

Alzheimer Patient Tracker Using Android Development

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Abstract: Dementia is a condition often linked with cognitive decline and is more prevalent in older individuals. Because of its progressive nature, it can lead to various changes in sensory perceptions for those affected. Consequently, consistently tracking the assistance requirements of patients and monitoring the noise levels in their surroundings can be a significant challenge for caregivers, particularly healthcare professionals in nursing facilities. In this study, we introduce an application with a user-friendly interface designed for the non-invasive acoustic monitoring of patients while respecting their privacy. This is accomplished by employing neural network-based models for sound scene classification and source location estimation. These models are trained to achieve impressive results of 98.80% accuracy. The application also compares the time-averaged sound levels to recommended standards based on the specific location and time of the day.

Keywords: Dementia, Neurodegenerative, Medication Management, Symptom Monitoring, Location tracking, Emergency contacts, Caregiver Support, Cognitive Exercises.

I. INTRODUCTION

Dementia is a neurodegenerative condition often seen in the elderly, leading to cognitive decline [1]. This progressive disease can alter how patients perceive external stimuli, particularly sounds and light [2], causing them to experience agitation without realizing why. Such distress can increase the risk of falls, wandering, and significant behavioral changes [3,4].

As a result, continuous monitoring and support are crucial to maintaining a safe environment for these patients. Monitoring systems are frequently employed as assistive technology to help caregivers assess the patient's need for assistance. However, visual-based monitoring systems often raise ethical concerns related to privacy infringement [5,6].

In light of these concerns, audio-based systems utilizing Artificial Intelligence (AI) offer a viable alternative. Additionally, microphones are less intrusive than cameras.

II. RELATED WORK

1) Memhans: An Assistive Device for Dementia Patients. Author: Unais Sait, Vandana D Ravishankar, Tarun Kumar, Sanjana Shivakumar this System is use for dementia patients as Assistance helpful for patient in their lifestyle.

2) DemCure: A Technology-oriented solution for Assisting Caretakers and Dementia Patients with Mild Cognitive Impairment(2020) Amirita Dewani*, Mehdi Raza Lakho*, Ghulam Haider Buledi*, Urooj Samoo*, Naila Anwer*, Maseera Latif In this sytem caretaker monitor the Patients progress and guide the patients in between treatment

3) An Application for Dementia Patient Monitoring with Sound Level Assessment tool(2021) Abigail Copiaco1 , Christian Ritz2 , Stefano Fasciani3 this system is useful for monitoring dementia patients using sound level assessment tool

4) Geofencing Technology in Monitoring of Geriatric Patients Suffering from Dementia and Alzheimer(2021) Ernes Randika Pratama, Faiza Renaldi, Fajri Rachmat Umbara, Esmeralda Contessa Djamal In this day and age, many technologies are used to easily track the whereabouts of others, as in this study, Geofencing technology is used to track or monitor the existence of geriatric patients. This is done because geriatric patients who have dementia and Alzheimer's have impaired brain memory that can potentially get lost somewhere and cannot go home

III. PROPOSED WORK

1) Admin: In this module, the administrator must log in with a valid username and password. Upon successful login, they can perform various operations, including viewing all users, authorizing access to E-Commerce websites, viewing all products and reviews, checking early product reviews, examining keyword search details, assessing product search ratios, and reviewing keyword search results.

2) View and Authorize Users: In this module, the administrator can access the roster of registered users. Within this feature, the administrator can inspect user information, including their username, email address, and physical address, and grant authorization to these users.

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3) *View Charts Result:* Examine the Ratio of All Products in the Search. Explore the Results from Keyword Search. Check out the Ranking Results for Product Reviews.
4) *E-commerce User:* In this module, there are a certain number of users who must complete a registration process before performing any actions. Once a user successfully registers, their information will be securely stored in the database. Subsequently, the registered user will be required to log in using their authorized username and password. Upon a successful login, the user can perform various operations, including adding products, viewing all products along with their respective reviews, accessing reviews for recently added products, and viewing details of all their purchase transactions.
5) *End User:* In this module, there are multiple users who need to complete a registration process before performing any actions. When a user successfully registers, their information is securely stored in the database. After a successful registration, the user must log in using their authorized username and password. Once the login is successful, the user can perform various operations such as managing their account, searching for products using keywords, making purchases, viewing their transaction history, and accessing other features.

A. Data Flow Diagram

1) DFD0



Figure 1: Data Flow of Process

2) DFD1

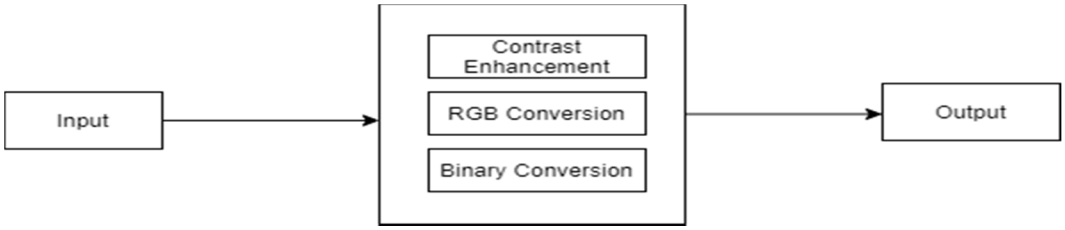


Figure 2: Data Flow of Process 1

3) DFD2

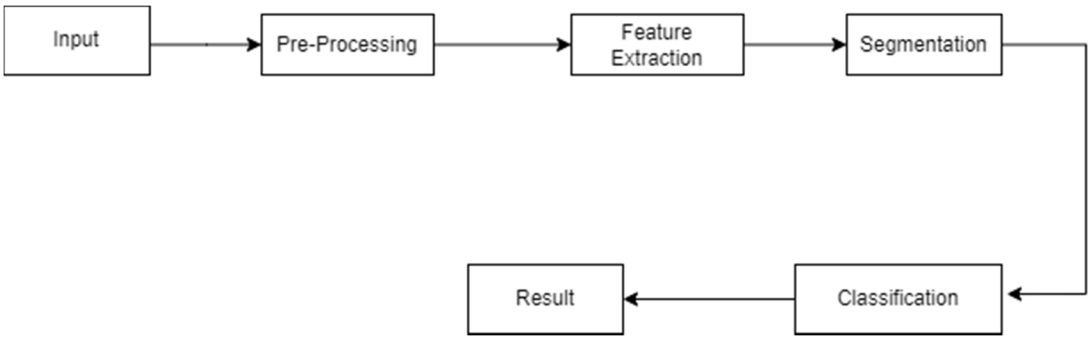


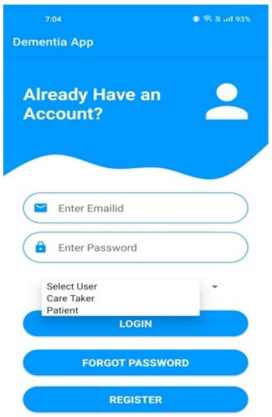
Figure 3: Data Flow of Process 2

ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.538
Volume 12 Issue IV Apr 2024- Available at www.ijraset.com

IV. IMPLEMENTATION

The System process takes place in following way:

1) There are two Section of Application



a) Patient Section: The user section serves as the interface for users who use it for daily basis. Using this application improve Patients memory.

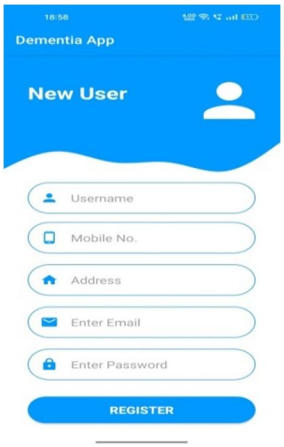
b) Caretaker Section: The caretaker section is dedicated to manage and monitor the patients activities.

There are two main section of Application. Select one section depends on profession. After selecting one section there are two option as follows Login and Registration

In Login section there are two field is there Email-id and Password. In Registration section there are 5 field as follows : Username,Mobile No,Address, Email , Password

2) Patient Section

Patient Registration:



a) Purpose

The registration process allows new users to create an account within the garbage collection application.

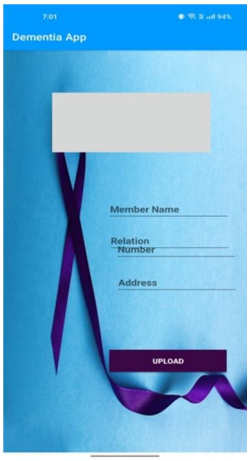
Components:

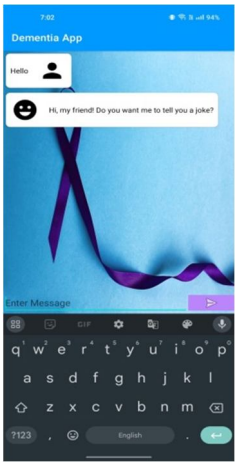
- *Name:* Users are required to provide their full name during registration to personalize their account
- *Address:* Users input their residential address which helps in for efficient garbage collection services.
- *Email:* A valid email address is necessary for account verification and communication purposes. Phone Number: Users are asked to provide a contact number, which can be used for communication purposes.
- *Password:* To ensure account security, users create a password that meets specified criteria (e.g., minimum length, combination of characters).

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3) Patient Dashboard

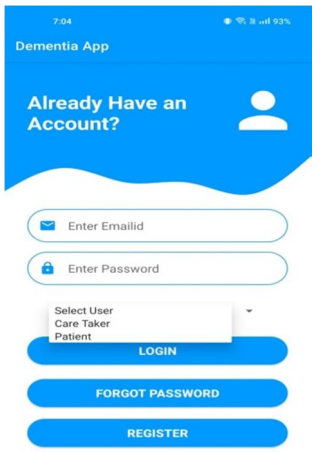






Patient dashboard provides various options which involves Add Family details where patient can save its family details which are stored in the Show Family details.
Another functionality that patient dashboard provides is Add Notes where patient can add its personal notes which are further useful for the patient. The notes which are added in this section are shown in the Show Note section.
Show Tips is the section where tips added by the caretaker are stored and that are accessible for the patient for improving its overall performance.
Quiz Game is the another functionality provided in the patient dashboard which involves multiple quiz which are beneficial for patient.
One more important option provided in the dashboard in Chat bot which will be very useful for the patient to clearing the doubts. Chat bot provides answers for multiple questions of the patient.
Location is the section where patient get to know its home location regardless of its current location. This provides simple path to the patient to reach the home.

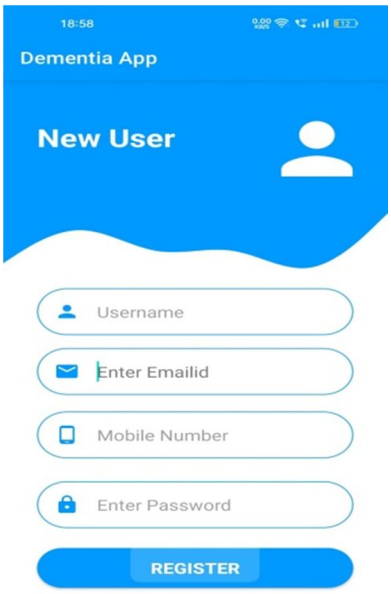
4) CareTaker Section
CareTaker Section Login Page:



Purpose: The login page serves as the entry point for CareTaker to access the application and its functionalities.
Components:
Email and Password Fields: Allows drivers to input their credentials securely.
Not Registered/Create Account Button: Provides an option for new users to register for an account if they haven't already.
Forgot Password Button: Offers a mechanism for users to reset their password if forgotten.

5) CareTaker Registration Process:

Purpose: The registration process allows new users to create an account within application.
Components:
Name: Users are required to provide their full name during registration to personalize their account.
Address: Users input their residential address which helps in for efficient garbage collection services.
Email: A valid email address is necessary for account verification and communication purposes. Phone Number: Users are asked to provide a contact number, which can be used for communication purposes.
Password: To ensure account security, users create a password that meets specified criteria (e.g., minimum length, combination of characters).

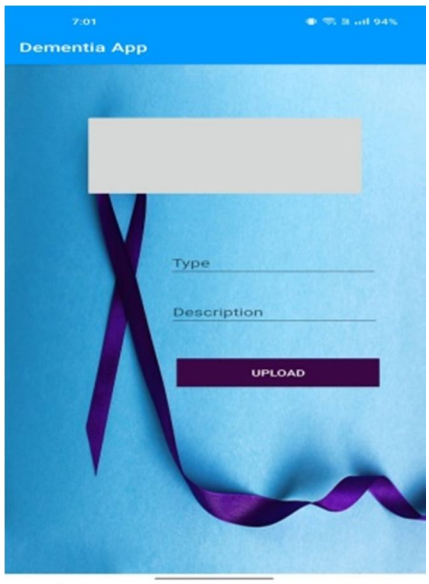


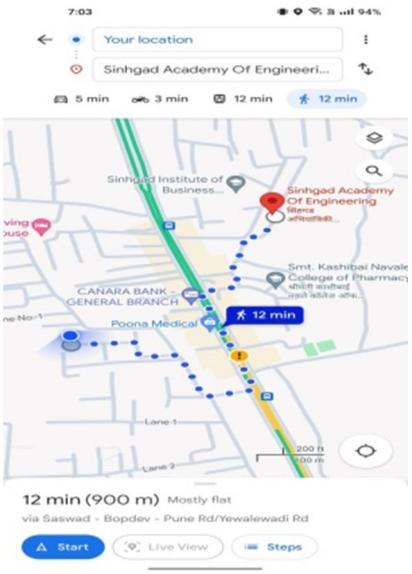
6) Caretaker Dashboard:

Purpose: After successful login, caretaker is directed to the dashboard, which acts as a centralized hub for accessing various features and functionalities.



Components:
Medicine Reminder Button: Allows caretaker to send the medicine reminder to the patient.
Exercise Reminder Button: Enables caretaker to send the exercise reminder to the patient..
Tracking Button: Provides access to caretaker for tracking the current location of the patient.
Upload Tips Button: Allows caretaker to provide the tips for the patient for its progression.





V. ARCHITECTURE

The system architecture of the " Alzheimer Patient Tracker Using Android Development" is designed to provide a scalable, reliable, and efficient platform for Alzheimer Patient. The architecture comprises several interconnected components, each serving a specific purpose and contributing to the overall functionality of the system.

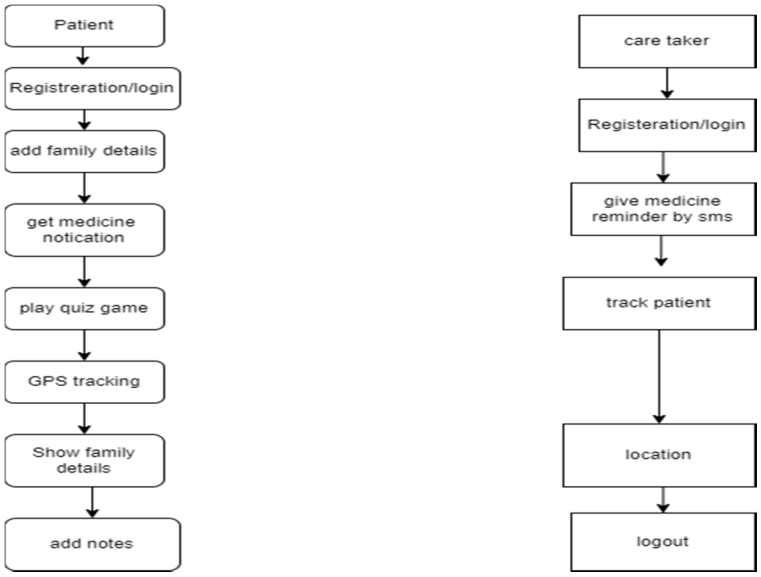


Fig. Architecture of Project

VI. FUTURE WORK

Dementia results from various underlying diseases, making it improbable that a singular cure for all forms of dementia will be discovered. Ongoing research is focused on identifying treatments for specific diseases that lead to dementia, including Alzheimer's disease, front temporal dementia, and dementia with Lowy bodies. To summarize, a patient tracking system can improve clinical decisions, support medical claims, reduce errors, improve quality of care, increase practice efficiency, improve patient communication and satisfaction and assist in decreasing costs by reducing errors and accessing a centralized medical database. Remote patient monitoring allows physicians and hospitals to monitor patients outside the conventional clinic setting, where the technology can provide 24/7 data between patients and physicians.

VII. CONCLUSION

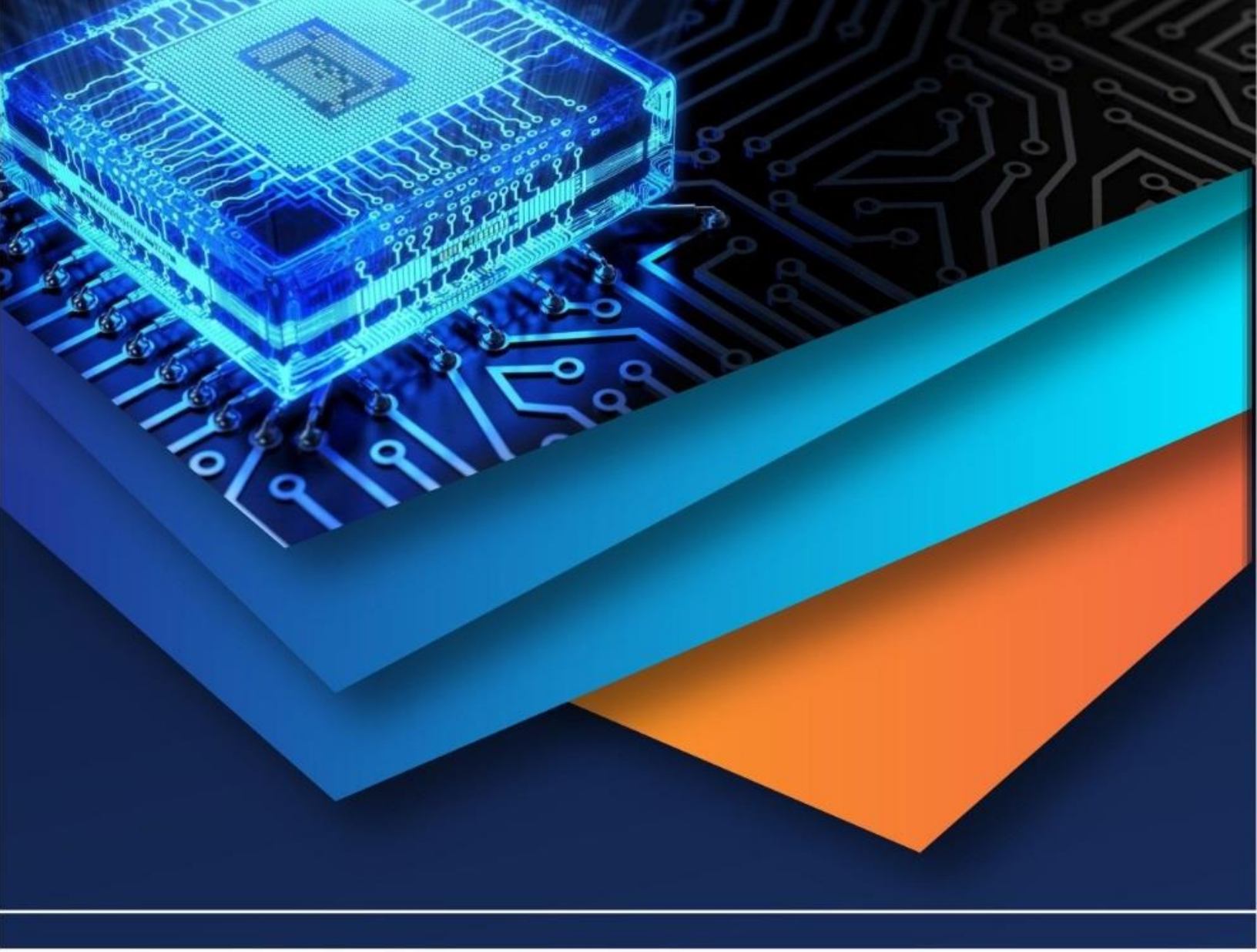
While the mobile application may appear similar to the mobile website at first glance, there are notable distinctions. Installing the mobile app on a device entails consuming storage space, and its availability to end users is contingent on distribution channels and their conditions. Furthermore, creating an app necessitates tailoring it to each device, unlike mobile websites, which are compatible with any device. Nevertheless, an app provides superior accessibility, capacity, and performance. These considerations led us to choose to develop the Mobile Alzheimer's application.

VIII. ACKNOWLEDGMENTS

The authors would like to express their gratitude to the faculty at Sinhgad Academy of Engineering for their guidance and support throughout the development of this application. They would also like to thank the residents who participated in the pilot program and provided valuable feedback for system improvement.

REFERENCES

[1] 2019 14th Iberian Conference on Information Systems and Technologies (CISTI) 19 – 22 June 2019, Coimbra, Portugal.
[2] Authorized licensed use limited to: University of Exeter. Downloaded on June 06,2020 at 20:13:52 UTC.
[3] Authorized licensed use limited to: Auckland University of Technology. Down- loaded on May 28,2020 at 07:09:58 UTC from IEEE Explore.
[4] M. Grossman, “Stages of Dementia: The 3- Stage and the 7-Stage Models,” Kindly care, 2018.[Online].Available: https://www.kindlycare.com/stages-dementia/. [Accessed: 06-May2019].



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